

Claims:

1. A novel protein (polypeptide-k) extracted from *Momordica charantia* comprising amino acids including:

| Amino acid | aaa936 | Avg nmoles | μgrams | mole percent | # residues |
|----------------|---------------------|------------|---------|--------------|------------|
| Cysac cmcys | | | | | |
| Asx | 3.6346 | 3.635 | 0.418 | 9.4% | 15.0 |
| Thr | 1.1549 | 1.155 | 0.117 | 3.0% | 4.8 |
| Ser | 2.0456 | 2.046 | 0.178 | 5.3% | 8.5 |
| Glx | 6.6195 | 6.619 | 0.848 | 17.1% | 27.4 |
| pro+cys | (2.1133) | (2.113) | (0.205) | 5.5% | (8.7) |
| Gly | 3.4509 | 3.451 | 0.197 | 8.9% | 14.3 |
| Ala | 2.8168 | 2.817 | 0.200 | 7.3% | 11.6 |
| Val | 2.6160 | 2.616 | 0.259 | 6.8% | 10.8 |
| met | 0.5625 | 0.563 | 0.074 | 1.5% | 2.3 |
| ileu | 1.8404 | 1.840 | 0.208 | 4.8% | 7.6 |
| leu | 3.1701 | 3.170 | 0.359 | 8.2% | 13.1 |
| tyr | 1.0645 | 1.064 | 0.174 | 2.7% | 4.4 |
| phe | 1.6115 | 1.612 | 0.237 | 4.2% | 6.7 |
| his | (1.2110) | (1.211) | (0.166) | 3.1% | (5.0) |
| lys | | | | | |
| trp | (not determined) | | | | |
| arg | 3.5602 | 3.560 | 0.556 | 9.2% | 14.7 |

5 % injected 100% total residues: 160

Said polypeptide-k having the following properties:

- 10 i. being water insoluble but partially soluble at pH 9.5 and completely soluble in 10% formic acid,
- ii. being capable of sub-lingual administration,
- iii. having free N-terminal,
- iv. being stable,
- v. having shelf-life of 18 months,
- vi. and having combustion point of 234°C, and
- 15 vii. does not show cross reaction when tested bovine insulin

2. A process for the extraction of a novel protein (polypeptide-k) from *Momordica charantia* comprising the steps of:
 - i. grinding the dry seeds of *Momordica charantia*,
 - 5 ii. treating the pulverized seeds with a mixture of hexane and acetone in the ratio 3:1,
 - iii. dissolving the residual mass in about 80% aqueous acetone,
 - iv. adjusting the pH upto 9.5 by adding suitable organic buffer like ammonium hydroxide,
 - 10 v. treating the supernatant layer with sulfuric acid after adjusting the pH to 3, and
 - vi. collecting the flocculent precipitate of polypeptide-k and isolating the protein by selective crystallization.
3. A process as claimed in claim 2 wherein the protein is extracted from the dry seeds of *Momordica charantia*
- 15 4. A process as claimed in claim 2, wherein the seeds of *Momordica charantia* are split, washed thoroughly with water 2-3 times to render it substantially free from impurities and dried under vacuum, before extraction of the protein.
- 20 5. A method for the treatment of *diabetes mellitus*, comprising the steps of administering a composition containing 'polypeptide k' orally (in a sublingual manner) to a subject in need thereof, at least 10 minutes before every meal, 4 times a day.
- 25 6. Use of the protein extracted from *Momordica charantia* to manufacture a hypoglycemic composition useful in the treatment of diabetes mellitus.